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ABSTRACT

The perceptions of teachers who have participated in professional development experiences provided by the Urban Systemic Initiative in four sites (Miami, Florida; Chicago, Illinois; El Pas, Texas; Memphis, Tennessee) were studied. Focus groups were conducted at each of the 47 schools across the 4 sites. Focus groups usually consisted of the five teacher participants at each site, but in some cases administrators and other teachers participated. Teachers discussed their views regarding content knowledge, pedagogy, and applicability of information garnered from professional development experiences. The responses were typically positive. However, many teachers reported that the content of the sessions was not directly applicable in their settings. Teachers also asserted that they would benefit from more site-based experiences. (Contains 27 references.) (SLD)

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Teachers' Perception of their USI Professional Development Experiences

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Paper presented at the meeting of the Systemic Initiative Conference of Key Indicators, Evaluation, Accountability, and Evaluative Studies of Urban School Districts, Tampa, Florida, April, 2001

David C. Anchin Center
University of South Florida

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Abstract

The perceptions of teachers who have participated in professional development experiences provided by the Urban Systemic Initiative in four sites (Miami, Chicago, El Paso, and Memphis) are examined in this paper. Teachers discussed their views regarding content knowledge, pedagogy, and applicability of information garnered from professional development experiences. The responses were typically positive. However, many teachers reported that the content of the sessions were not directly applicable in their settings. Teachers also asserted that they would benefit from more site-based experiences.

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Teachers' Perception of their Professional Development Experiences

Introduction

Professional development (PD) is the most important link in a chain of interrelated components framing school reform models including systemic reform approaches. Systemic reform as embodied in the National Science Foundation's (NSF's) efforts to enhance student outcomes in math and science rests upon intensive and sustained PD that ideally provides teachers with direct, hands-on, problem-solving pedagogical strategies and content knowledge. Although NSF does not endorse a specific PD format, most Urban Systemic Initiative (USI) projects employ programs of intensive PD focused on constructivist approaches to teaching math and science across grade levels K--12. The NSF's six-driver model posits a set of four process and two outcome variables necessary for the implementation of systemic reform of math and science instruction. The first driver calls for the "implementation of standards-based curriculum and/or instructional materials that are aligned with instruction and assessment." PD is the primary vehicle used for accomplishing the goals of the first driver. Our evaluation research, underway since 1999, targets four cities receiving funding under the USI: Miami, Memphis, El Paso and Chicago. In this paper we examine one aspect of our project: PD of mathematics and science teachers. Specifically, we examine teachers' perceptions regarding their PD experiences.

Literature Review

Because students spend most of their time in school with teachers, it is teachers who are in a position to directly influence student achievement. For student achievement to improve, PD must address what teachers need to know (knowledge base for teaching) and be able to do (appropriate pedagogical practices). When these two components are addressed in a sustained, targeted manner, student learning is supported in ways envisioned by the standards documents

(National Council of Teachers of Mathematics (NCTM) 1991, 2000, National Research Council (NRC, 1996). Researchers have found that lack of this knowledge base for teaching can be a barrier to effective instruction (Eisenhart, Borko, Underhill, Brown, Jones, & Agard, 1993).

Although addressing different kinds of subject matter, the national science standards (NRC 1996) and the national mathematics standards (NCTM 1989, 2000) espouse the same tenets regarding teaching and learning. Both sets of standards draw from a constructivist philosophy of learning with direct implications for teaching. While constructivism does not prescribe a particular teaching strategy (Simon,1995), it implies that traditional forms of instruction, where students are passive recipients of knowledge, is inadequate. To teach in the ways envisioned by the standards documents, teachers must be well grounded in content knowledge, must understand what is known about students' cognitive abilities, and must provide instruction in ways that allow students to be fully and actively engaged with the subject matter. However, standards-based instruction cannot be solely characterized by the use of particular activities or manipulatives in the classroom.

> A series of hands-on or lab activities does not necessarily result in math [or science] learning. For learning to occur, instructional tasks must engage students in thinking about mathematical [or scientific] ideas. They must be organized into a purposeful series of lessons with a clear instructional goal. Depending on the activity and the goal of the lesson, cooperative groups may or may not be appropriate (Briars 1999, 23).

Much has been written about the components of effective PD (Loucks-Horsley et al., 1998), however the components mean little if the content of the PD experience is not valuable (Kennedy, 1999). In the paragraphs that follow we present results and recommendations from the literature regarding effective PD programs.

There is a growing recognition that teachers' attitudes and beliefs, and their prior experiences as learners and instructors color and impact how they receive information provided in PD experiences. What they learn is influenced by many aspects of their existing knowledge. "In addition to the concepts of science, mathematics, and other disciplines they know, their expectations, attitudes, and beliefs about themselves and about knowledge, learning, schooling, and the community in which they live are also important" (Loucks-Horsley et al. 1998) and must be addressed. Changes in instructional practices are dependent on individual teachers' beliefs about the appropriateness of such activity for students. As a result, PD programs should be designed to include components that address beliefs in order for changes in beliefs to occur through reflection and self-assessment (Jones, Lubinski, Swafford, & Thornton, 1994).

Researchers found that integrating school-based activities in PD activities is one way to ensure that teachers are using their newly acquired knowledge (Jones, Lubinski, Swafford, & Thornton, 1994). Most teachers define their success in terms of the learning of their students rather than in terms of their own actions or other factors. Teachers expect that PD will provide practical, concrete ideas for their classroom; when PD is undertaken in isolation from a teacher's ongoing classroom role, it is likely to have little effect on either teaching practice or students' learning. Teachers need to identify the connection between the PD offered and their classroom context. As a result, "teachers must experience reform in their classrooms and have opportunities to grapple with the difficulties that arise" (Acquarelli & Mumme, 1997). This type of PD experience involves a more intimate process than is typically provided by "training." It requires opportunities "to learn within a teacher's day-to-day work."(Dilworth & Imig 1995, p.8).

In comparison with teachers in other countries, U.S. teachers have little time to engage in planning, reflection, and feedback, particularly with colleagues (Stigler & Stevenson, 1991).

Engaging teachers in improving instructional practices with their peers can assist them as they make decisions, set goals, reflect on teaching practices, and discuss relevant teaching issues (Castle & Aichele, 1994). In this way, the teachers are not learning in isolation from others. They are jointly responsible for their work in the classroom and have a support system available should they encounter challenges (Dilworth & Imig, 1995). They should be afforded opportunities to meet regularly with the same people to develop the trust that is necessary to deal with important instructional issues (Weissglass, 1994). Being part of a learning community also helps build the capacity of further learning.

Building collaboration among teachers as part of PD is essential to establish a norm of collegiality (Little 1982) as part of the school culture and to sustain any reform effort. This support system provides teachers with the motivation and encouragement to engage in risk-taking (Hyde, Orimston, & Hyde, 1994, Loucks-Horsley et al 1998, Jones, Lubinski, Swafford, & Thornton 1994, Weissglass, 1994). Both the mathematics and the science standards documents express the need to provide teachers with opportunities to receive feedback about their teaching as part of PD (NCTM 1991, NRC, 1996). The intent is for teachers to understand, analyze, and apply that feedback as a means to improve their institutional practice.

PD experiences benefit teachers significantly if they specifically address issues that teachers identified (Jones et al, 1994). Sparks (1995) suggests that "rather than basing staff development solely upon the perceptions of educators regarding what they need (e.g. learning about classroom management), staff development planning processes [should begin] by determining the things students need to know and be able to do and working backwards to the knowledge, skills, and attitudes required of educators if those students outcomes are to be realized" (p. 3).

APPROACH

Participants

Our sample of teachers in this study was drawn from the four participating school district sites: Miami-Dade County Public Schools, Chicago Public Schools, Memphis City Schools and the three school districts – El Paso, Socorro and Ysleta – comprising the El Paso Collaborative. Teachers from our participating schools were selected using the following criteria: (1) five years or more of teaching experience, preferably at the same school; (2) teaching credential/certification in math or science at the middle and high school levels; and (3) willingness to participate in the study.

Data Sources

Focus Group. Various sources were utilized to gain insight regarding educators' perceptions about their PD experiences. The decision to use focus groups for teachers was made to complement the vast array of quantitative data that was collected as part of our research. It was believed that focus groups could potentially illuminate notions held by teachers about PD opportunities they had experienced. Focus groups, identified as a useful tool in the study of the success or failure of particular programs (Greenbaum, 1993, Vaugh, Schumm, & Sinagub, 1996), were yet another method that permitted access to teachers' views and attitudes. In the first 18 months of our three-year project, we conducted focus group meetings at each of the 47 schools across the four USI sites participating in this study. The focus groups generally consisted of the five teachers participating in the research, but occasionally included administrators and other teachers. The focus group facilitators asked participants open-ended questions about their PD experiences with emphasis on what they liked, disliked or wanted to see changed. These meetings were audio-recorded and transcribed.

Questionnaire. Because of the potential impact of group dynamics on focus group discussions, individual teacher's points-of-view were solicited using an eight-question open-ended questionnaire. The open-ended nature of the questionnaire allowed each teacher an opportunity to describe his or her personal views regarding PD activities.

Data Analysis

All of the data were analyzed in a similar manner. We read approximately 50% of the focus group transcripts without formal analysis to familiarize ourselves with the data and to begin to frame an initial set of rubrics for analysis. Then, we extracted teachers' statements reflecting their attitudes toward PD. If a teacher simply said "I like workshops" without elaboration, the statement was excluded. If a teacher said, "I like workshops because they provide an opportunity to interact with other teachers," this statement was included because it expressed a rationale. Following the process of independent coding, the researchers conferred on difficult cases. This approach allowed for the validation of interpretations made by multiple investigators. We followed the focus group protocol to determine which responses were most relevant to the analysis.

Once the data were reduced, a database was developed. Individual teacher statements became units for analysis. We then identified patterns among teacher responses that emerged from the data. As additional data were analyzed, categories became more defined and hierarchical. For example, we initially grouped all teacher data focused on training content together; however, with further analysis, more specific categories such as technology and math curriculum were created. Categories emerged from and were defined by the data. As one investigator organized the data and built categories, others independently checked the

appropriateness of each category and confirmed placement. No cases were encountered for which initially conflicting researcher interpretations could not be reconciled.

Results

Content Knowledge.

We found evidence that teachers may have improved their content knowledge as a result of attending PD offerings. During the focus group meetings, subject-matter knowledge was mentioned in at least one school in each of the four districts. A teacher in Chicago made the following statement,

> It was a nice course because I didn't have much of a background in that particular field. And it gave me a background and a great number of ideas that I could use in the classroom. This one had a lot of practical ideas that were suitable at high school level" [CH3200].
>
> A teacher in El Paso mentioned that professional-development session's "[clarified] concepts to be taught" [EP1100].

Pedagogy.

By far, most of the responses from teachers, in both the questionnaire and the focus groups, addressed pedagogy. The responses tended to fall in the following categories: hands-on, curriculum integration, technology, and group work. Typically, teachers either spoke positively about their experiences or suggested that they needed additional training in a particular area. Although the teachers acknowledged the benefits of the focus on instructional practices, several teachers in different focus group meetings raised the issue that they needed more time to adopt the particular strategies. One teacher asserted, "you just don't internalize enough that you feel comfortable doing the things in the classroom" [CH3200].

Site-based PD.

Teachers from each school reported that site-based PD was desirable and effective. The few teachers who discussed mentors in their classrooms praised the effort as an effective way to facilitate the implementation of change. At two focus groups in El Paso, the teachers made statements like the following, "I know that any time I've had a question, when I don't understand how to do something, I've asked [Name], and she is our USI mentor" [EP1100]. At a focus group in Miami, a teacher asserted, "We had a classroom observer, she comes in and she observes once a month" [Mi2200]. The following was mentioned at three focus groups in Chicago, "They would come to our classes and give instruction …" [Ch1400].

Moving PD into actual student-filled classrooms was an idea advocated by teachers in Chicago, El Paso and Miami. To capture this sentiment, a teacher said,

> I'd give my right arm for somebody to come in and just show me what the heck that they're talking about. I can listen to it. I can conceptualize it but then I come back and try to put it into practice in the classroom and I feel like sometimes we're [not] all on the same wavelength [EP3100].

As another example, a teacher said, "give us the information then observe and mentor us to assure understanding and usage" (MI2300). In a school in Chicago, teachers asserted that "It would be nice if they could send people out and do classroom lessons so we can observe and actually see it in the classroom rather than attending with two hundred teachers" (CH1100). Others from the same cities expressed the desire for this to occur more often. The other rationale for site-based training surrounded issues of convenience. Teachers generally feel overworked and the closer the workshops are to their school, the easier it is for the teachers to participate.

Applicability.

Although many teachers expressed the applicability of pedagogical techniques presented in training, a relatively high percentage of schools (33% in El Paso, 40% in Memphis, and 42% in Miami) complained that PD was not applicable to their classrooms. Perceived difficulties included concentration on content not covered, lack of flexibility, no grade level specificity, and lack of coordination with textbooks. In three focus groups in El Paso, teachers said that they "[would like] more training about what we are actually teaching in the classroom" [EP2100]. In four focus groups in Memphis, teachers shared the following view, "I would enjoy [activities if they went] along with the textbook, the activities that go with the different sections of the book"[ME2400]. Teachers in five focus groups and surveys in Miami said, "I would like more workshops designed specifically for my grade level and curriculum" [MI1500].

Structure.

The majority of the school representatives from all cities mentioned the more active nature of PD. Most comments supported hands-on involvement in training sessions. "Seeing the experiments first hand was a lot more useful than just reading about it" (CH3100, 1/10). However, a few teachers pointed out the problems and inconsistencies of teachers assuming student roles during workshops. At two focus groups in El Paso, teachers shared the following view,

> In the meetings they always ask us to put it into practice and were putting it to practice in front of other adults and they'll say act like my kids. Trust me if I act like my kids you'll throw me out of the meeting and I won't get what I need. (EP3100)

Statements were also provided that revealed that not all PD sessions were implementing the same instructional techniques that they advocated. Teachers in two focus groups in Memphis

reported "the math workshop was lecture with no involvement from the participants" (MI1500, 3/12). Overall the teachers provided positive comments about their own active involvement in PD experiences.

Teachers from El Paso, Memphis and Miami liked having other teachers lead the PD activity they attended. Teachers in five focus groups in Memphis shared the following view; "[PD] activities are most useful when the presenter is a teacher in the trenches like us. These presenters provide us with practical ideas and solutions" (ME1200). In at least two locations from Memphis, teachers expressed dislike of those sessions led by professional consultants or district personnel. "The ones presented by consultants that have been out of the classroom are usually not as good. They seem to be in a dream world" (ME3200).

Discussion

During our analysis we discovered that two components of effective PD programs that are often encouraged in the literature were not addressed: teachers' beliefs and the benefits of forming learning communities. To determine whether this was simply an oversight by teachers, we decided to explore district documents to discern if they were, in fact, addressed as part of their districts' PD programs.

Teachers' Beliefs and Experience.

We found that the district documents provided little evidence that dealing with teachers' beliefs as part of PD was a priority for any of the four sites. However, in its annual report, Chicago did state that they used efficacy seminars as a way to change the way people think about children and their abilities (Chicago AR, 1997). El Paso documents acknowledged the significance of teacher beliefs and the time required to accomplish change. "Teachers need to know that they will be given the time to learn how to do things very differently in classrooms,

and that they will be given the space to fail, on the path toward lasting improvement" (El Paso AR, 1996-97 p. 2). In contrast, there was no or very little evidence from teachers that the PD in which they participated addressed prior knowledge and beliefs. However, there were several examples that suggested that unaddressed beliefs may interfere with the goals of the reform effort. The following comment is representative of statements made in two focus groups in El Paso.

> "[The problem that students are having] is the careless errors. And I think it is because of lack of practice in the drill. And not that I am against higher order thinking, but if they don't have the drill, I had the drill as a child, and when I got the higher order thinking, the process fit in" [EL2300].

Without addressing these types of beliefs, teachers may not be receptive to the kind of pedagogy encouraged in PD sessions. Individuals with this frame of reference have not had to examine how their beliefs might limit the kinds of opportunities students are provided. Research provides evidence that PD activities that address teachers' content knowledge and belief can positively influence their instructional practices (Fennema & Franke, 1992; Franke, Fennema, & Carpenter, 1997; Parajes, 1992, Thomspon, 1992).

Members of Learning Communities.

Although the benefits and the need of learning communities are discussed in the literature (Adajian, 1996; Lieberman, 1995; Hord & Cowan, 1999), only three teachers in Chicago discussed the development of a learning community as part of their PD experiences. Comments from the other districts did not imply any realization that the implementation of reform would require an intra-school support network. A topic that did garner attention from teachers in all districts was PD's role in establishing networks of colleagues from different schools. Many

teachers commented on the value of talking to other educators in their discipline. Workshops provided a vehicle for the exchange of ideas (successful lesson plans, labs and activities) among teachers who did not otherwise have the opportunity to share with one another. "It gave us an opportunity to exchange lesson plans and ideas, what worked, what didn't."(CH2200). "[It] allows us to make those professional connections" (EP2400). "Teachers across the city, whatever subject you're teaching meet and share activities and ideas"(ME2400). "[It] gave me an opportunity to find out how other teachers in the districts were implementing their programs" (MI1100). Although inter-school networking assuredly gives teachers new ideas, it does not establish the "community" recommended by research literature and the standards. Most of the teachers in this study failed to articulate the need for a critical mass of like-minded educators supporting one another in the implementation of systemic reform.

Because PD is the engine that drives the reform effort in these districts, it is important that all factors that may impact the implementation of standards-based instruction are addressed. Preliminary analyses of the classroom observation data do not reveal significant changes in classroom practices that are compatible with the nature of standards-based instruction. This suggests that more needs to be done to help teachers implement the newly learned strategies in their classroom.

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Dr. Kersaint is Co-Principal Investigator for the NSF Grant and Assistant professor of Mathematics Education at the University of South Florida. She received her B.S. in Mathematics in 1990 and her M.S. in Mathematics Education in 1992 from the University of Miami. She received her Ph.D. in Mathematics Education from Illinois State University in 1998. Dr. Kersaint comes to University mathematics having taught for several years in Miami-Dade County high schools and worked with the Juvenile Alternative Service Program, helping first offenders achieve their correct grade levels in mathematics.

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Ted Boydston is a retired science educator from Miami-Dade County Public Schools. The first eighteen years of his education career he was a high school science teacher of biology, chemistry, physics, and earth science, along with 12 years as science department chairperson. During his is last seven years with the school district, he was a District Science Supervisor preceded by five years as a science coordinator in one of the school district's six regions. Ted is currently enjoying research on improving mathematics and science education as a senior research associate in the David C. Anchin Center of the College of Education at the University of South Florida.

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